WHAT IS CLAIMED IS:

1. A method for reading the magnetization orientation of a memory cell, the method comprising:

applying a magnetic field to the memory cell;

observing any change in resistance of the memory cell as the magnetic field is applied; and

determining the magnetization orientation based upon the observed change in resistance of the memory cell.

2. The method of claim 1, wherein the magnetic field is a negative magnetic field and wherein determining the magnetization orientation includes determining the memory cell is in a parallel magnetization orientation if there is a change in resistance of the memory cell.

3. The method of claim 1, wherein the magnetic field is a negative magnetic field and wherein determining the magnetization orientation includes determining the memory cell is in an anti-parallel magnetization orientation if there is no change in resistance of the memory cell.

4. The method of claim 1, wherein the magnetic field has a magnitude less than a magnitude required to alter the magnetization orientation of the memory cell.

5. The method of claim 1, wherein the memory cell comprises a sense layer having an alterable magnetization orientation and a reference layer having a fixed magnetization orientation, and wherein the sense layer is shaped to enhance an edge domain effect of the memory cell.

6. A method for reading data from a selected memory cell in an array of memory cells, the selected memory cell being positioned between a first write line and a second write line, the method comprising:

supplying a first current in the first write line;

detecting any change in resistance R of the selected memory cell as the first current is supplied to the first write line;

reversing the first current in the first write line;

detecting any change in resistance R of the selected memory cell as the reversed first current is supplied to the first write line; and

determining the magnetization orientation of the selected memory cell based on the detected change in resistance R of the selected memory cell as the first current and the reversed first current are supplied to the first write line.

7. The method of claim 6, wherein supplying the first current does not alter the magnetization orientation of the selected memory cell.

8. The method of claim 6, wherein determining the magnetization orientation of the selected memory cell includes determining a $\delta R/\delta H$ curve for the selected memory cell, where R is the measured resistance and H is the magnetic field strength.

9. The method of claim 8, wherein determining a $\delta R/\delta H$ curve for the selected memory cell includes sampling the resistance of the selected memory cell at a plurality of different magnetic fields about the first line.

10. The method of claim 6, wherein the array of memory cells is a magnetic random access memory device.

11. The method of claim 6, wherein determining the magnetization orientation of the selected memory cell includes determining the memory cell is in a parallel magnetization orientation if there is a change in resistance of the

memory cell, and determining the memory cell is in an anti-parallel magnetization orientation if there is no change in resistance of the memory cell.

12. The method of claim 6, further comprising supplying a second current in the second write line while the first current is supplied to the first write line.

13. A method for detecting the magnetization orientation of a memory cell, the memory cell operatively positioned between a first conductor and a second conductor, the method comprising:

creating a first magnetic field about the first conductor;

creating a second magnetic field about the second conductor;

observing changes in the resistance of the memory cell under the influence of the first and second magnetic fields;

replacing the second magnetic field with a third magnetic field; and

observing changes in the resistance of the memory cell under the influence of the first and third magnetic fields.

14. The method of claim 13, wherein the third magnetic field has a polarization direction opposite a polarization direction of the second magnetic field.

15. The method of claim 13, wherein creating a magnetic field about the conductors includes supplying electric currents through the conductors.

16. The method of claim 13, wherein the first and second magnetic fields do not alter the magnetization orientation in the memory cell.

17. The method of claim 13, wherein the first and third magnetic fields do not alter the magnetization orientation in the memory cell.

18. The method of claim 13, wherein observing changes in the resistance of the memory cell includes measuring a $\delta R/\delta H$ curve for the memory cell, where R is the measured resistance and H is the magnetic field strength.

19. The method of claim 18, wherein measuring a $\delta R/\delta H$ curve includes sampling the resistance of the memory cell at a plurality of magnetic fields.

20. The method of claim 13, wherein the memory cell is in an array of memory cells.

21. The method of claim 13, wherein the memory cell is in a magnetic random access memory device.

22. A system for reading the magnetization orientation of a memory cell, the system comprising:

a memory cell operatively positioned between a first conductor and a second conductor;

a current source for applying a variable current to the first conductor and a corresponding variable magnetic field to the memory cell;

a resistance measurement module for measuring change in resistance of the memory cell with change in the applied magnetic field; and

a comparator module for comparing the measured change in resistance with change in applied magnetic field to a model change in resistance with change in applied magnetic field.

23. The system of claim 22, wherein the memory cell is in an array of memory cells.

24. The system of claim 22, wherein the memory cell comprises a sense layer having an alterable magnetization orientation and a reference layer having a fixed magnetization orientation.

25. The system of claim 24, wherein the sense layer is shaped to enhance an edge domain effect of the memory cell.

26. The system of claim 22, wherein the measured and model change in resistance with change in applied magnetic field are $\delta R/\delta H$ curves, where R is the memory cell resistance and H is the magnetic field strength.

27. The system of claim 22, wherein the model change in resistance with change in applied magnetic field is a hysteresis loop.

28. A system for reading the magnetization orientation of a memory cell, the system comprising:

a memory cell operatively positioned between a first conductor and a second conductor;

means for applying a variable current to the first conductor and a corresponding variable magnetic field to the memory cell;

means for measuring change in resistance of the memory cell with change in the applied magnetic field; and

means for comparing the measured change in resistance with change in applied magnetic field to a model change in resistance with change in applied magnetic field.

29. The system of claim 28, wherein the measured and model change in resistance with change in applied magnetic field are $\delta R/\delta H$ curves, where R is the memory cell resistance and H is the magnetic field strength.

30. The system of claim 28, wherein the model change in resistance with change in applied magnetic field is a hysteresis loop.